



SEQUENCE LISTING

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<120> NPC1L1 (NPC3) AND METHODS OF USE THEREOF

<130> JB01603-K1-US

<140> 10/646,301

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<170> PatentIn version 3.1

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<212> DNA

<213> Rattus sp.

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Gln Asp Cys Ala Ala Ser Cys Pro Val Ile Pro Pro Pro Glu Ala Leu	
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Arg Pro Ser Phe Tyr Met Gly Arg Met Pro Gly Trp Leu Ala Leu Ile	
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Tyr	Gln	Arg	Leu	Pro	Arg	Met	Pro	Gly	Glu	Gln	Arg	Glu	Ala	His	Ile	

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Tyr	Val	Ala	Ile	Ala	Ala	Ser	Ser	Trp	Val	Asp	Asp	Phe	Ile	Asp	Trp	
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Leu	Thr	Pro	Ser	Ser	Ser	Cys	Cys	Arg	Leu	Tyr	Ile	Arg	Gly	Pro	His	
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Asn Cys Met Asn Arg Thr Leu Gly Pro Val Arg Pro Thr Ala Glu Gln	
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Phe His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Pro Pro Asn Ile	
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Ser Phe Ala Val Ser Thr Lys Pro Thr Arg Leu Glu Arg Ala Lys	
1190 1195 1200	

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Val Thr Gly Glu His Leu Ala Leu Leu Gln Arg Ile Cys Pro Arg Leu  
65 70 75 80

Tyr Asn Gly Pro Asn Thr Thr Phe Ala Cys Cys Ser Thr Lys Gln Leu  
85 90 95

Leu Ser Leu Glu Ser Ser Met Ser Ile Thr Lys Ala Leu Leu Thr Arg  
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Cys Pro Ala Cys Ser Asp Asn Phe Val Ser Leu His Cys His Asn Thr  
115 120 125

Cys Ser Pro Asp Gln Ser Leu Phe Ile Asn Val Thr Arg Val Val Glu  
130 135 140

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Ile Ile Phe Thr Ala Val Phe Val Leu Leu Ser Ala Val Leu Val Arg



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Glu Ala Pro Lys Leu Pro His Lys His Lys Leu Ser Pro His Thr Ile				
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Leu Gly Arg Phe Phe Gln Asn Trp Gly Thr Arg Val Ala Ser Trp Pro				
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Leu Thr Val Leu Ala Leu Ser Phe Ile Val Val Ile Ala Leu Ala Ala				
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Gly Leu Thr Phe Ile Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser				
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Ala Pro Lys Ser Gln Ala Arg Lys Glu Lys Ser Phe His Asp Glu His				
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Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Tyr Asn Thr				
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Pro Leu Thr Phe Lys Asp Gly Thr Ser Leu Ala Leu Ser Cys Met Ala				
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Asn Asn Tyr Pro Ala Asp Asp Pro Arg Met Ala Gln Ala Lys Leu Trp  
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Asp Lys Phe Gln Val Ala Phe Ser Ala Glu Arg Ser Leu Glu Asp Glu  
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Cys Ser Arg Val Ala Val Glu Ser Lys Ala Thr Leu Gly Leu Gly Gly  
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Val Ile Val Val Leu Gly Ala Val Leu Ala Ala Met Gly Phe Tyr Ser  
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Tyr Leu Gly Val Pro Ser Ser Leu Val Ile Ile Gln Val Val Pro Phe  
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Val Arg Thr Phe Ala Leu Thr Ser Gly Leu Ala Ile Ile Leu Asp Phe  
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Arg Lys Ile Tyr Ala Pro Phe Leu Leu His Arg Phe Ile Arg Pro Val  
 835 840 845

Val Met Leu Leu Phe Leu Thr Leu Phe Gly Ala Asn Leu Tyr Leu Met  
 850 855 860

Cys Asn Ile Asn Val Gly Leu Asp Gln Glu Leu Ala Leu Pro Lys Asp  
 865 870 875 880

Ser Tyr Leu Ile Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Leu Glu Val  
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Gly Pro Pro Val Tyr Phe Val Thr Thr Ser Gly Phe Asn Phe Ser Ser  
 900 905 910

Glu Ala Gly Met Asn Ala Thr Cys Ser Ser Ala Gly Cys Lys Ser Phe  
 915 920 925

Ser Leu Thr Gln Lys Ile Gln Tyr Ala Ser Glu Phe Pro Asp Gln Ser  
 930 935 940

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 945 950 955 960

Leu Thr Pro Ser Ser Ser Cys Cys Arg Leu Tyr Ile Arg Gly Pro His  
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 995 1000 1005

Phe His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Pro Pro Asn Ile  
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	1100					1105					1110			
Ile	Phe	Thr	Leu	Ala	Leu	Cys	Phe	Val	Pro	Thr	Phe	Val	Val	Cys
	1115					1120					1125			
Tyr	Leu	Leu	Leu	Gly	Leu	Asp	Met	Cys	Ser	Gly	Ile	Leu	Asn	Leu
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Leu	Ser	Ile	Ile	Met	Ile	Leu	Val	Asp	Thr	Ile	Gly	Leu	Met	Ala
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Val	Trp	Gly	Ile	Ser	Tyr	Asn	Ala	Val	Ser	Leu	Ile	Asn	Leu	Val
	1160					1165					1170			
Thr	Ala	Val	Gly	Met	Ser	Val	Glu	Phe	Val	Ser	His	Ile	Thr	Arg
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Ser	Phe	Ala	Val	Ser	Thr	Lys	Pro	Thr	Arg	Leu	Glu	Arg	Ala	Lys
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Asp	Ala	Thr	Val	Phe	Met	Gly	Ser	Ala	Val	Phe	Ala	Gly	Val	Ala
	1205					1210					1215			
Met	Thr	Asn	Phe	Pro	Gly	Ile	Leu	Ile	Leu	Gly	Phe	Ala	Gln	Ala
	1220					1225					1230			
Gln	Leu	Ile	Gln	Ile	Phe	Phe	Phe	Arg	Leu	Asn	Leu	Leu	Ile	Thr
	1235					1240					1245			
Leu	Leu	Gly	Leu	Leu	His	Gly	Leu	Val	Phe	Leu	Pro	Val	Val	Leu

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Ser Tyr Leu Gly Pro Asp Val Asn Gln Ala Leu Val Gln Glu Glu				
1265		1270		1275
Lys Leu Ala Ser Glu Ala Ala Val Ala Pro Glu Pro Ser Cys Pro				
1280		1285		1290
Gln Tyr Pro Ser Pro Ala Asp Ala Asp Ala Asn Val Asn Tyr Gly				
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Phe Ala Pro Glu Leu Ala His Gly Ala Asn Ala Ala Arg Ser Ser				
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cgc ttg gcc cag agt gag cct tac aca acc atc cac cag cct ggc tac	96
Arg Leu Ala Gln Ser Glu Pro Tyr Thr Thr Ile His Gln Pro Gly Tyr	
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tgc gcc ttc tat gac gaa tgt ggg aag aac cca gag ctg tct gga agc	144
Cys Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser	
35 40 45	
ctc atg aca ctc tcc aac gtg tcc tgc ctg tcc aac acg ccg gcc cgc	192
Leu Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg	
50 55 60	
aag atc aca ggt gat cac ctg atc cta tta cag aag atc tgc ccc cgc	240

Lys 65	Ile	Thr	Gly	Asp	His 70	Leu	Ile	Leu	Leu	Gln 75	Lys	Ile	Cys	Pro	Arg 80	
ctc	tac	acc	ggc	ccc	aac	acc	caa	gcc	tgc	tgc	tcc	gcc	aag	cag	ctg	288
Leu	Tyr	Thr	Gly	Pro	Asn	Thr	Gln	Ala	Cys	Cys	Ser	Ala	Lys	Gln	Leu	
				85					90					95		
gta	tca	ctg	gaa	gcg	agt	ctg	tcg	atc	acc	aag	gcc	ctc	ctc	acc	cgc	336
Val	Ser	Leu	Glu	Ala	Ser	Leu	Ser	Ile	Thr	Lys	Ala	Leu	Leu	Thr	Arg	
			100					105						110		
tgc	cca	gcc	tgc	tct	gac	aat	ttt	gtg	aac	ctg	cac	tgc	cac	aac	acg	384
Cys	Pro	Ala	Cys	Ser	Asp	Asn	Phe	Val	Asn	Leu	His	Cys	His	Asn	Thr	
		115					120					125				
tgc	agc	ccc	aat	cag	agc	ctc	ttc	atc	aat	gtg	acc	cgc	gtg	gcc	cag	432
Cys	Ser	Pro	Asn	Gln	Ser	Leu	Phe	Ile	Asn	Val	Thr	Arg	Val	Ala	Gln	
	130					135					140					
cta	ggg	gct	gga	caa	ctc	cca	gct	gtg	gtg	gcc	tat	gag	gcc	ttc	tac	480
Leu	Gly	Ala	Gly	Gln	Leu	Pro	Ala	Val	Val	Ala	Tyr	Glu	Ala	Phe	Tyr	
145					150					155					160	
cag	cat	agc	ttt	gcc	gag	cag	agc	tat	gac	tcc	tgc	agc	cgt	gtg	cgc	528
Gln	His	Ser	Phe	Ala	Glu	Gln	Ser	Tyr	Asp	Ser	Cys	Ser	Arg	Val	Arg	
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gtc	cct	gca	gct	gcc	acg	ctg	gct	gtg	ggc	acc	atg	tgt	ggc	gtg	tat	576
Val	Pro	Ala	Ala	Ala	Thr	Leu	Ala	Val	Gly	Thr	Met	Cys	Gly	Val	Tyr	
			180					185					190			
ggc	tct	gcc	ctt	tgc	aat	gcc	cag	cgc	tgg	ctc	aac	ttc	cag	gga	gac	624
Gly	Ser	Ala	Leu	Cys	Asn	Ala	Gln	Arg	Trp	Leu	Asn	Phe	Gln	Gly	Asp	
		195					200					205				
aca	ggc	aat	ggt	ctg	gcc	cca	ctg	gac	atc	acc	ttc	cac	ctc	ttg	gag	672
Thr	Gly	Asn	Gly	Leu	Ala	Pro	Leu	Asp	Ile	Thr	Phe	His	Leu	Leu	Glu	
	210					215					220					
cct	ggc	cag	gcc	gtg	ggg	agt	ggg	att	cag	cct	ctg	aat	gag	ggg	gtt	720
Pro	Gly	Gln	Ala	Val	Gly	Ser	Gly	Ile	Gln	Pro	Leu	Asn	Glu	Gly	Val	
225					230					235					240	
gca	cgt	tgc	aat	gag	tcc	caa	ggt	gac	gac	gtg	gcg	acc	tgc	tcc	tgc	768
Ala	Arg	Cys	Asn	Glu	Ser	Gln	Gly	Asp	Asp	Val	Ala	Thr	Cys	Ser	Cys	
				245				250						255		
caa	gac	tgt	gct	gca	tcc	tgt	cct	gcc	ata	gcc	cgc	ccc	cag	gcc	ctc	816
Gln	Asp	Cys	Ala	Ala	Ser	Cys	Pro	Ala	Ile	Ala	Arg	Pro	Gln	Ala	Leu	
			260					265					270			
gac	tcc	acc	ttc	tac	ctg	ggc	cag	atg	ccg	ggc	agt	ctg	gtc	ctc	atc	864
Asp	Ser	Thr	Phe	Tyr	Leu	Gly	Gln	Met	Pro	Gly	Ser	Leu	Val	Leu	Ile	
		275					280					285				
atc	atc	ctc	tgc	tct	gtc	ttc	gct	gtg	gtc	acc	atc	ctg	ctt	gtg	gga	912
Ile	Ile	Leu	Cys	Ser	Val	Phe	Ala	Val	Val	Thr	Ile	Leu	Leu	Val	Gly	
	290					295					300					
ttc	cgt	gtg	gcc	ccc	gcc	agg	gac	aaa	agc	aag	atg	gtg	gac	ccc	aag	960
Phe	Arg	Val	Ala	Pro	Ala	Arg	Asp	Lys	Ser	Lys	Met	Val	Asp	Pro	Lys	

305		310		315		320	
aag ggc acc agc ctc tct gac aag ctc agc ttc tcc acc cac acc ctc							1008
Lys Gly Thr Ser Leu Ser Asp Lys Leu Ser Phe Ser Thr His Thr Leu							
		325		330		335	
ctt ggc cag ttc ttc cag ggc tgg ggc acg tgg gtg gct tcg tgg cct							1056
Leu Gly Gln Phe Phe Gln Gly Trp Gly Thr Trp Val Ala Ser Trp Pro							
		340		345		350	
ctg acc atc ttg gtg cta tct gtc atc ccg gtg gtg gcc ttg gca gcg							1104
Leu Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala							
		355		360		365	
ggc ctg gtc ttt aca gaa ctc act acg gac ccc gtg gag ctg tgg tcg							1152
Gly Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser							
		370		375		380	
gcc ccc aac agc caa gcc cgg agt gag aaa gct ttc cat gac cag cat							1200
Ala Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His							
		385		390		395	400
ttc ggc ccc ttc ttc cga acc aac cag gtg atc ctg acg gct cct aac							1248
Phe Gly Pro Phe Phe Arg Thr Asn Gln Val Ile Leu Thr Ala Pro Asn							
		405		410		415	
cgg tcc agc tac agg tat gac tct ctg ctg ctg ggg ccc aag aac ttc							1296
Arg Ser Ser Tyr Arg Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe							
		420		425		430	
agc gga atc ctg gac ctg gac ttg ctg ctg gag ctg cta gag ctg cag							1344
Ser Gly Ile Leu Asp Leu Asp Leu Leu Leu Glu Leu Leu Glu Leu Gln							
		435		440		445	
gag agg ctg cgg cac ctc cag gta tgg tcg ccc gaa gca cag cgc aac							1392
Glu Arg Leu Arg His Leu Gln Val Trp Ser Pro Glu Ala Gln Arg Asn							
		450		455		460	
atc tcc ctg cag gac atc tgc tac gcc ccc ctc aat ccg gac aat acc							1440
Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Asp Asn Thr							
		465		470		475	480
agt ctc tac gac tgc tgc atc aac agc ctc ctg cag tat ttc cag aac							1488
Ser Leu Tyr Asp Cys Cys Ile Asn Ser Leu Leu Gln Tyr Phe Gln Asn							
		485		490		495	
aac cgc acg ctc ctg ctg ctc aca gcc aac cag aca ctg atg ggg cag							1536
Asn Arg Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Met Gly Gln							
		500		505		510	
acc tcc caa gtc gac tgg aag gac cat ttt ctg tac tgt gcc aat gcc							1584
Thr Ser Gln Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala							
		515		520		525	
ccg ctc acc ttc aag gat ggc aca gcc ctg gcc ctg agc tgc atg gct							1632
Pro Leu Thr Phe Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Met Ala							
		530		535		540	
gac tac ggg gcc cct gtc ttc ccc ttc ctt gcc att ggg ggg tac aaa							1680
Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Ile Gly Gly Tyr Lys							
		545		550		555	560

gga aag gac tat tct gag gca gag gcc ctg atc atg acg ttc tcc ctc	1728
Gly Lys Asp Tyr Ser Glu Ala Glu Ala Leu Ile Met Thr Phe Ser Leu	
565 570 575	
aac aat tac cct gcc ggg gac ccc cgt ctg gcc cag gcc aag ctg tgg	1776
Asn Asn Tyr Pro Ala Gly Asp Pro Arg Leu Ala Gln Ala Lys Leu Trp	
580 585 590	
gag gag gcc ttc tta gag gaa atg cga gcc ttc cag cgt cgg atg gct	1824
Glu Glu Ala Phe Leu Glu Glu Met Arg Ala Phe Gln Arg Arg Met Ala	
595 600 605	
ggc atg ttc cag gtc acg ttc acg gct gag cgc tct ctg gaa gac gag	1872
Gly Met Phe Gln Val Thr Phe Thr Ala Glu Arg Ser Leu Glu Asp Glu	
610 615 620	
atc aat cgc acc aca gct gaa gac ctg ccc atc ttt gcc acc agc tac	1920
Ile Asn Arg Thr Thr Ala Glu Asp Leu Pro Ile Phe Ala Thr Ser Tyr	
625 630 635 640	
att gtc ata ttc ctg tac atc tct ctg gcc ctg ggc agc tat tcc agc	1968
Ile Val Ile Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Ser	
645 650 655	
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Trp Ser Arg Val Met Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly	
660 665 670	
gtg gcc gtg gtc ctg gga gca gtc atg gct gcc atg ggc ttc ttc tcc	2064
Val Ala Val Val Leu Gly Ala Val Met Ala Ala Met Gly Phe Phe Ser	
675 680 685	
tac ttg ggt atc cgc tcc tcc ctg gtc atc ctg caa gtg gtt cct ttc	2112
Tyr Leu Gly Ile Arg Ser Ser Leu Val Ile Leu Gln Val Val Pro Phe	
690 695 700	
ctg gtg ctg tcc gtg ggg gct gat aac atc ttc atc ttt gtt ctc gag	2160
Leu Val Leu Ser Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu	
705 710 715 720	
tac cag agg ctg ccc cgg agg cct ggg gag cca cga gag gtc cac att	2208
Tyr Gln Arg Leu Pro Arg Arg Pro Gly Glu Pro Arg Glu Val His Ile	
725 730 735	
ggg cga gcc cta ggc agg gtg gct ccc agc atg ctg ttg tgc agc ctc	2256
Gly Arg Ala Leu Gly Arg Val Ala Pro Ser Met Leu Leu Cys Ser Leu	
740 745 750	
tct gag gcc atc tgc ttc ttc cta ggg gcc ctg acc ccc atg cca gct	2304
Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Pro Met Pro Ala	
755 760 765	
gtg cgg acc ttt gcc ctg acc tct ggc ctt gca gtg atc ctt gac ttc	2352
Val Arg Thr Phe Ala Leu Thr Ser Gly Leu Ala Val Ile Leu Asp Phe	
770 775 780	
ctc ctg cag atg tca gcc ttt gtg gcc ctg ctc tcc ctg gac agc aag	2400
Leu Leu Gln Met Ser Ala Phe Val Ala Leu Leu Ser Leu Asp Ser Lys	
785 790 795 800	



agg cag gag gcc tcc cgg ttg gac gtc tgc tgc tgt gtc aag ccc cag	2448
Arg Gln Glu Ala Ser Arg Leu Asp Val Cys Cys Cys Val Lys Pro Gln	
805 810 815	
gag ctg ccc ccg cct ggc cag gga gag ggg ctc ctg ctt ggc ttc ttc	2496
Glu Leu Pro Pro Pro Gly Gln Gly Glu Gly Leu Leu Leu Gly Phe Phe	
820 825 830	
caa aag gct tat gcc ccc ttc ctg ctg cac tgg atc act cga ggt gtt	2544
Gln Lys Ala Tyr Ala Pro Phe Leu Leu His Trp Ile Thr Arg Gly Val	
835 840 845	
gtg ctg ctg ctg ttt ctc gcc ctg ttc gga gtg agc ctc tac tcc atg	2592
Val Leu Leu Leu Phe Leu Ala Leu Phe Gly Val Ser Leu Tyr Ser Met	
850 855 860	
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Cys His Ile Ser Val Gly Leu Asp Gln Glu Leu Ala Leu Pro Lys Asp	
865 870 875 880	
tcg tac ctg ctt gac tat ttc ctc ttt ctg aac cgc tac ttc gag gtg	2688
Ser Tyr Leu Leu Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Phe Glu Val	
885 890 895	
ggg gcc ccg gtg tac ttt gtt acc acc ttg ggc tac aac ttc tcc agc	2736
Gly Ala Pro Val Tyr Phe Val Thr Thr Leu Gly Tyr Asn Phe Ser Ser	
900 905 910	
gag gct ggg atg aat gcc atc tgc tcc agt gca ggc tgc aac aac ttc	2784
Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Asn Asn Phe	
915 920 925	
tcc ttc acc cag aag atc cag tat gcc aca gag ttc cct gag cag tct	2832
Ser Phe Thr Gln Lys Ile Gln Tyr Ala Thr Glu Phe Pro Glu Gln Ser	
930 935 940	
tac ctg gcc atc cct gcc tcc tcc tgg gtg gat gac ttc att gac tgg	2880
Tyr Leu Ala Ile Pro Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp	
945 950 955 960	
ctg acc ccg tcc tcc tgc tgc cgc ctt tat ata tct ggc ccc aat aag	2928
Leu Thr Pro Ser Ser Cys Cys Arg Leu Tyr Ile Ser Gly Pro Asn Lys	
965 970 975	
gac aag ttc tgc ccc tcg acc gtc aac tct ctg aac tgc cta aag aac	2976
Asp Lys Phe Cys Pro Ser Thr Val Asn Ser Leu Asn Cys Leu Lys Asn	
980 985 990	
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Cys Met Ser Ile Thr Met Gly Ser Val Arg Pro Ser Val Glu Gln Phe	
995 1000 1005	
cat aag tat ctt ccc tgg ttc ctg aac gac cgg ccc aac atc aaa	3069
His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Arg Pro Asn Ile Lys	
1010 1015 1020	
tgt ccc aaa ggc ggc ctg gca gca tac agc acc tct gtg aac ttg	3114
Cys Pro Lys Gly Gly Leu Ala Ala Tyr Ser Thr Ser Val Asn Leu	
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act tca gat ggc cag gtt tta gcc tcc agg ttc atg gcc tat cac	3159

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Lys	Pro	Leu	Lys	Asn	Ser	Gln	Asp	Tyr	Thr	Glu	Ala	Leu	Arg	Ala	
1055						1060					1065				
gct	cga	gag	ctg	gca	gcc	aac	atc	act	gct	gac	ctg	cgg	aaa	gtg	3249
Ala	Arg	Glu	Leu	Ala	Ala	Asn	Ile	Thr	Ala	Asp	Leu	Arg	Lys	Val	
1070						1075					1080				
cct	gga	aca	gac	ccg	gct	ttt	gag	gtc	ttc	ccc	tac	acg	atc	acc	3294
Pro	Gly	Thr	Asp	Pro	Ala	Phe	Glu	Val	Phe	Pro	Tyr	Thr	Ile	Thr	
1085						1090					1095				
aat	gtg	ttt	tat	gag	cag	tac	ctg	acc	atc	ctc	cct	gag	ggg	ctc	3339
Asn	Val	Phe	Tyr	Glu	Gln	Tyr	Leu	Thr	Ile	Leu	Pro	Glu	Gly	Leu	
1100						1105					1110				
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Phe	Met	Leu	Ser	Leu	Cys	Leu	Val	Pro	Thr	Phe	Ala	Val	Ser	Cys	
1115						1120					1125				
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Leu	Leu	Leu	Gly	Leu	Asp	Leu	Arg	Ser	Gly	Leu	Leu	Asn	Leu	Leu	
1130						1135					1140				
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Ser	Ile	Val	Met	Ile	Leu	Val	Asp	Thr	Val	Gly	Phe	Met	Ala	Leu	
1145						1150					1155				
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Trp	Asp	Ile	Ser	Tyr	Asn	Ala	Val	Ser	Leu	Ile	Asn	Leu	Val	Ser	
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gcg	gtg	ggc	atg	tct	gtg	gag	ttt	gtg	tcc	cac	att	acc	cgc	tcc	3564
Ala	Val	Gly	Met	Ser	Val	Glu	Phe	Val	Ser	His	Ile	Thr	Arg	Ser	
1175						1180					1185				
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Phe	Ala	Ile	Ser	Thr	Lys	Pro	Thr	Trp	Leu	Glu	Arg	Ala	Lys	Glu	
1190						1195					1200				
gcc	acc	atc	tct	atg	gga	agt	gcg	gtg	ttt	gca	ggt	gtg	gcc	atg	3654
Ala	Thr	Ile	Ser	Met	Gly	Ser	Ala	Val	Phe	Ala	Gly	Val	Ala	Met	
1205						1210					1215				
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Thr	Asn	Leu	Pro	Gly	Ile	Leu	Val	Leu	Gly	Leu	Ala	Lys	Ala	Gln	
1220						1225					1230				
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Leu	Ile	Gln	Ile	Phe	Phe	Phe	Arg	Leu	Asn	Leu	Leu	Ile	Thr	Leu	
1235						1240					1245				
ctg	ggc	ctg	ctg	cat	ggc	ttg	gtc	ttc	ctg	ccc	gtc	atc	ctc	agc	3789
Leu	Gly	Leu	Leu	His	Gly	Leu	Val	Phe	Leu	Pro	Val	Ile	Leu	Ser	
1250						1255					1260				
tac	gtg	ggg	cct	gac	gtt	aac	ccg	gct	ctg	gca	ctg	gag	cag	aag	3834
Tyr	Val	Gly	Pro	Asp	Val	Asn	Pro	Ala	Leu	Ala	Leu	Glu	Gln	Lys	

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Arg Ala Glu Glu Ala Val Ala		Ala Val Met Val Ala		Ser Cys Pro	
1280		1285		1290	
aat cac ccc tcc cga gtc tcc		aca gct gac aac atc		tat gtc aac	3924
Asn His Pro Ser Arg Val Ser		Thr Ala Asp Asn Ile		Tyr Val Asn	
1295		1300		1305	
cac agc ttt gaa ggt tct atc		aaa ggt gct ggt gcc		atc agc aac	3969
His Ser Phe Glu Gly Ser Ile		Lys Gly Ala Gly Ala		Ile Ser Asn	
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Phe Leu Pro Asn Asn Gly Arg		Gln Phe			
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<212> PRT

<213> Homo sapiens

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Cys Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser	
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Leu Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg	
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Lys Ile Thr Gly Asp His Leu Ile Leu Leu Gln Lys Ile Cys Pro Arg	
65 70 75 80	
Leu Tyr Thr Gly Pro Asn Thr Gln Ala Cys Cys Ser Ala Lys Gln Leu	
85 90 95	
Val Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg	
100 105 110	
Cys Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr	
115 120 125	

Cys	Ser	Pro	Asn	Gln	Ser	Leu	Phe	Ile	Asn	Val	Thr	Arg	Val	Ala	Gln	130	135	140	
Leu	Gly	Ala	Gly	Gln	Leu	Pro	Ala	Val	Val	Ala	Tyr	Glu	Ala	Phe	Tyr	145	150	155	160
Gln	His	Ser	Phe	Ala	Glu	Gln	Ser	Tyr	Asp	Ser	Cys	Ser	Arg	Val	Arg	165	170	175	
Val	Pro	Ala	Ala	Ala	Thr	Leu	Ala	Val	Gly	Thr	Met	Cys	Gly	Val	Tyr	180	185	190	
Gly	Ser	Ala	Leu	Cys	Asn	Ala	Gln	Arg	Trp	Leu	Asn	Phe	Gln	Gly	Asp	195	200	205	
Thr	Gly	Asn	Gly	Leu	Ala	Pro	Leu	Asp	Ile	Thr	Phe	His	Leu	Leu	Glu	210	215	220	
Pro	Gly	Gln	Ala	Val	Gly	Ser	Gly	Ile	Gln	Pro	Leu	Asn	Glu	Gly	Val	225	230	235	240
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Gln	Asp	Cys	Ala	Ala	Ser	Cys	Pro	Ala	Ile	Ala	Arg	Pro	Gln	Ala	Leu	260	265	270	
Asp	Ser	Thr	Phe	Tyr	Leu	Gly	Gln	Met	Pro	Gly	Ser	Leu	Val	Leu	Ile	275	280	285	
Ile	Ile	Leu	Cys	Ser	Val	Phe	Ala	Val	Val	Thr	Ile	Leu	Leu	Val	Gly	290	295	300	
Phe	Arg	Val	Ala	Pro	Ala	Arg	Asp	Lys	Ser	Lys	Met	Val	Asp	Pro	Lys	305	310	315	320
Lys	Gly	Thr	Ser	Leu	Ser	Asp	Lys	Leu	Ser	Phe	Ser	Thr	His	Thr	Leu	325	330	335	
Leu	Gly	Gln	Phe	Phe	Gln	Gly	Trp	Gly	Thr	Trp	Val	Ala	Ser	Trp	Pro	340	345	350	
Leu	Thr	Ile	Leu	Val	Leu	Ser	Val	Ile	Pro	Val	Val	Ala	Leu	Ala	Ala	355	360	365	

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Ala	Pro	Asn	Ser	Gln	Ala	Arg	Ser	Glu	Lys	Ala	Phe	His	Asp	Gln	His	385	390	395	400
Phe	Gly	Pro	Phe	Phe	Arg	Thr	Asn	Gln	Val	Ile	Leu	Thr	Ala	Pro	Asn	405	410	415	
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Ser	Gly	Ile	Leu	Asp	Leu	Asp	Leu	Leu	Leu	Glu	Leu	Leu	Glu	Leu	Gln	435	440	445	
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Ser	Leu	Tyr	Asp	Cys	Cys	Ile	Asn	Ser	Leu	Leu	Gln	Tyr	Phe	Gln	Asn	485	490	495	
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Pro	Leu	Thr	Phe	Lys	Asp	Gly	Thr	Ala	Leu	Ala	Leu	Ser	Cys	Met	Ala	530	535	540	
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Ser Tyr Leu Leu Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Phe Glu Val				
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Gly Ala Pro Val Tyr Phe Val Thr Thr Leu Gly Tyr Asn Phe Ser Ser				
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Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Asn Asn Phe				
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Ser Phe Thr Gln Lys Ile Gln Tyr Ala Thr Glu Phe Pro Glu Gln Ser				
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Tyr Leu Ala Ile Pro Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp				
945		950		955
Leu Thr Pro Ser Ser Cys Cys Arg Leu Tyr Ile Ser Gly Pro Asn Lys				
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Asp Lys Phe Cys Pro Ser Thr Val Asn Ser Leu Asn Cys Leu Lys Asn				
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Cys Met Ser Ile Thr Met Gly Ser Val Arg Pro Ser Val Glu Gln Phe				
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His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Arg Pro Asn Ile Lys				
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Cys Pro Lys Gly Gly Leu Ala Ala Tyr Ser Thr Ser Val Asn Leu				
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Thr Ser Asp Gly Gln Val Leu Ala Ser Arg Phe Met Ala Tyr His				
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Lys Pro Leu Lys Asn Ser Gln Asp Tyr Thr Glu Ala Leu Arg Ala				
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Ala Arg Glu Leu Ala Ala Asn Ile Thr Ala Asp Leu Arg Lys Val				
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Pro Gly Thr Asp Pro Ala Phe Glu Val Phe Pro Tyr Thr Ile Thr				
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1160						1165					1170			
Ala	Val	Gly	Met	Ser	Val	Glu	Phe	Val	Ser	His	Ile	Thr	Arg	Ser
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Phe	Ala	Ile	Ser	Thr	Lys	Pro	Thr	Trp	Leu	Glu	Arg	Ala	Lys	Glu
1190						1195					1200			
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Thr	Asn	Leu	Pro	Gly	Ile	Leu	Val	Leu	Gly	Leu	Ala	Lys	Ala	Gln
1220						1225					1230			
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Tyr	Val	Gly	Pro	Asp	Val	Asn	Pro	Ala	Leu	Ala	Leu	Glu	Gln	Lys
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Arg	Ala	Glu	Glu	Ala	Val	Ala	Ala	Val	Met	Val	Ala	Ser	Cys	Pro
1280						1285					1290			
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1295						1300					1305			
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<211> 885

<212> DNA

<213> Rattus sp.

<400> 5

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<211> 458

<212> DNA

<213> Rattus sp.

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<211> 896

<212> DNA

<213> Rattus sp.

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<210> 8

<211> 3124

<212> DNA

<213> Rattus sp.

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<210> 9

<211> 4484

<212> DNA

<213> Rattus sp.

<400> 9

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Asn Leu Pro Pro Pro Lys Gln Lys Glu Gly Leu Leu Leu Cys Phe Phe	
820 825 830	
cgc aag ata tac act ccc ttc ctg ctg cac aga ttc atc cgc cct gtt	2544
Arg Lys Ile Tyr Thr Pro Phe Leu Leu His Arg Phe Ile Arg Pro Val	
835 840 845	
gtg ctg ctg ctc ttt ctg gtc ctg ttt gga gca aac ctc tac tta atg	2592
Val Leu Leu Leu Phe Leu Val Leu Phe Gly Ala Asn Leu Tyr Leu Met	
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tgc aac atc agc gtg ggg ctg gac cag gat ctg gct ctg ccc aag gat	2640
Cys Asn Ile Ser Val Gly Leu Asp Gln Asp Leu Ala Leu Pro Lys Asp	
865 870 875 880	
tcc tac ctg ata gac tac ttc ctc ttt ctg aac cgg tac ttg gaa gtg	2688
Ser Tyr Leu Ile Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Leu Glu Val	
885 890 895	
ggg cct cca gtg tac ttt gac acc acc tca ggc tac aac ttt tcc acc	2736

Gly	Pro	Pro	Val	Tyr	Phe	Asp	Thr	Thr	Ser	Gly	Tyr	Asn	Phe	Ser	Thr		
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gag	gca	ggc	atg	aac	gcc	att	tgc	tct	agt	gca	ggc	tgt	gag	agc	ttc	2784	
Glu	Ala	Gly	Met	Asn	Ala	Ile	Cys	Ser	Ser	Ala	Gly	Cys	Glu	Ser	Phe		
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tcc	cta	acc	cag	aaa	atc	cag	tat	gcc	agt	gaa	ttc	cct	aat	cag	tct	2832	
Ser	Leu	Thr	Gln	Lys	Ile	Gln	Tyr	Ala	Ser	Glu	Phe	Pro	Asn	Gln	Ser		
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tat	gtg	gct	att	gct	gca	tcc	tcc	tgg	gta	gat	gac	ttc	atc	gac	tgg	2880	
Tyr	Val	Ala	Ile	Ala	Ala	Ser	Ser	Trp	Val	Asp	Asp	Phe	Ile	Asp	Trp		
945					950					955					960		
ctg	acc	cca	tcc	tcc	tcc	tgc	tgc	cgc	att	tat	acc	cgt	ggc	ccc	cat	2928	
Leu	Thr	Pro	Ser	Ser	Ser	Cys	Cys	Arg	Ile	Tyr	Thr	Arg	Gly	Pro	His		
				965				970						975			
aaa	gat	gag	ttc	tgt	ccc	tca	acg	gat	act	tcc	ttc	aac	tgt	ctc	aaa	2976	
Lys	Asp	Glu	Phe	Cys	Pro	Ser	Thr	Asp	Thr	Ser	Phe	Asn	Cys	Leu	Lys		
			980					985					990				
aac	tgc	atg	aac	cgc	act	ctg	ggc	ccc	gtg	aga	ccc	aca	aca	gaa	cag	3024	
Asn	Cys	Met	Asn	Arg	Thr	Leu	Gly	Pro	Val	Arg	Pro	Thr	Thr	Glu	Gln		
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ttt	cat	aag	tac	ctg	ccc	tgg	ttc	ctg	aat	gat	acg	ccc	aac	atc		3069	
Phe	His	Lys	Tyr	Leu	Pro	Trp	Phe	Leu	Asn	Asp	Thr	Pro	Asn	Ile			
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aga	tgt	cct	aaa	ggg	ggc	cta	gca	gcg	tat	aga	acc	tct	gtg	aat		3114	
Arg	Cys	Pro	Lys	Gly	Gly	Leu	Ala	Ala	Tyr	Arg	Thr	Ser	Val	Asn			
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Leu	Ser	Ser	Asp	Gly	Gln	Ile	Ile	Ala	Ser	Gln	Phe	Met	Ala	Tyr			
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cac	aag	ccc	tta	cgg	aac	tca	cag	gac	ttt	aca	gaa	gct	ctc	cgg		3204	
His	Lys	Pro	Leu	Arg	Asn	Ser	Gln	Asp	Phe	Thr	Glu	Ala	Leu	Arg			
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gca	tcc	cgg	ttg	cta	gca	gcc	aac	atc	aca	gct	gaa	cta	cgg	aag		3249	
Ala	Ser	Arg	Leu	Leu	Ala	Ala	Asn	Ile	Thr	Ala	Glu	Leu	Arg	Lys			
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Val	Pro	Gly	Thr	Asp	Pro	Asn	Phe	Glu	Val	Phe	Pro	Tyr	Thr	Ile			
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tcc	aat	gtg	ttc	tac	cag	caa	tac	ctg	acg	gtt	ctc	cct	gag	gga		3339	
Ser	Asn	Val	Phe	Tyr	Gln	Gln	Tyr	Leu	Thr	Val	Leu	Pro	Glu	Gly			
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atc	ttc	act	ctt	gct	ctc	tgc	ttc	gtg	ccc	acc	ttt	gtg	gtc	tgc		3384	
Ile	Phe	Thr	Leu	Ala	Leu	Cys	Phe	Val	Pro	Thr	Phe	Val	Val	Cys			
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tac	ctc	cta	ctg	ggc	ctg	gac	ata	cgc	tca	ggc	atc	ctc	aac	ctg		3429	
Tyr	Leu	Leu	Leu	Gly	Leu	Asp	Ile	Arg	Ser	Gly	Ile	Leu	Asn	Leu			

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ctc tcc atc att atg atc ctc	gtg gac acc atc ggc	ctc atg gct	3474
Leu Ser Ile Ile Met Ile Leu	Val Asp Thr Ile Gly	Leu Met Ala	
1145	1150	1155	
gtg tgg ggt atc agc tac aat	gct gtg tcc ctc atc	aac ctt gtc	3519
Val Trp Gly Ile Ser Tyr Asn	Ala Val Ser Leu Ile	Asn Leu Val	
1160	1165	1170	
acg gca gtg ggc atg tct gtg	gag ttc gtg tcc cac	att acc cgg	3564
Thr Ala Val Gly Met Ser Val	Glu Phe Val Ser His	Ile Thr Arg	
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tcc ttt gct gta agc acc aag	cct acc cgg ctg gag	aga gcc aaa	3609
Ser Phe Ala Val Ser Thr Lys	Pro Thr Arg Leu Glu	Arg Ala Lys	
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gat gct act atc ttc atg ggc	agt gcg gtg ttt gct	gga gtg gcc	3654
Asp Ala Thr Ile Phe Met Gly	Ser Ala Val Phe Ala	Gly Val Ala	
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atg acc aac ttc ccg ggc atc	ctc atc ctg ggc ttt	gct cag gcc	3699
Met Thr Asn Phe Pro Gly Ile	Leu Ile Leu Gly Phe	Ala Gln Ala	
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cag ctt atc cag att ttc ttc	ttc cgc ctc aac ctc	ctg atc acc	3744
Gln Leu Ile Gln Ile Phe Phe	Phe Arg Leu Asn Leu	Leu Ile Thr	
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ttg ctg ggt ctg cta cac ggc	ctg gtc ttc ctg ccc	gtt gtc ctc	3789
Leu Leu Gly Leu Leu His Gly	Leu Val Phe Leu Pro	Val Val Leu	
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agc tat ctg ggg cca gat gtt	aac caa gct ctg gta	ctg gag gag	3834
Ser Tyr Leu Gly Pro Asp Val	Asn Gln Ala Leu Val	Leu Glu Glu	
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aaa cta gcc act gag gca gcc	atg gtc tca gag cct	tct tgc cca	3879
Lys Leu Ala Thr Glu Ala Ala	Met Val Ser Glu Pro	Ser Cys Pro	
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cag tac ccc ttc ccg gct gat	gca aac acc agt gac	tat gtt aac	3924
Gln Tyr Pro Phe Pro Ala Asp	Ala Asn Thr Ser Asp	Tyr Val Asn	
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tac ggc ttt aat cca gaa ttt	atc cct gaa att aat	gct gct agc	3969
Tyr Gly Phe Asn Pro Glu Phe	Ile Pro Glu Ile Asn	Ala Ala Ser	
1310	1315	1320	
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Thr Phe Tyr Glu Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Gly Leu  
35 40 45

Thr Ser Leu Ser Asn Ile Ser Cys Leu Ser Asn Thr Pro Ala Arg His  
50 55 60

Val Thr Gly Asp His Leu Ala Leu Leu Gln Arg Val Cys Pro Arg Leu  
65 70 75 80

Tyr Asn Gly Pro Asn Asp Thr Tyr Ala Cys Cys Ser Thr Lys Gln Leu  
85 90 95

Val Ser Leu Asp Ser Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg  
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Cys Pro Ala Cys Ser Glu Asn Phe Val Ser Ile His Cys His Asn Thr  
115 120 125

Cys Ser Pro Asp Gln Ser Leu Phe Ile Asn Val Thr Arg Val Val Gln  
130 135 140

Arg Asp Pro Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr  
145 150 155 160

Gln Arg Ser Phe Ala Glu Lys Ala Tyr Glu Ser Cys Ser Arg Val Arg  
165 170 175

Ile Pro Ala Ala Ala Ser Leu Ala Val Gly Ser Met Cys Gly Val Tyr  
180 185 190

Gly Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp  
195 200 205

Thr Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu  
210 215 220



Pro Gly Gln Ala Leu Ala Asp Gly Met Lys Pro Leu Asp Gly Lys Ile  
 225 230 235 240

Thr Pro Cys Asn Glu Ser Gln Gly Glu Asp Ser Ala Ala Cys Ser Cys  
 245 250 255

Gln Asp Cys Ala Ala Ser Cys Pro Val Ile Pro Pro Pro Pro Ala Leu  
 260 265 270

Arg Pro Ser Phe Tyr Met Gly Arg Met Pro Gly Trp Leu Ala Leu Ile  
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Ile Ile Phe Thr Ala Val Phe Val Leu Leu Ser Val Val Leu Val Tyr  
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Leu Arg Val Ala Ser Asn Arg Asn Lys Asn Lys Thr Ala Gly Ser Gln  
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Glu Ala Pro Asn Leu Pro Arg Lys Arg Arg Phe Ser Pro His Thr Val  
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Leu Gly Arg Phe Phe Glu Ser Trp Gly Thr Arg Val Ala Ser Trp Pro  
 340 345 350

Leu Thr Val Leu Ala Leu Ser Phe Ile Val Val Ile Ala Leu Ser Val  
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Gly Leu Thr Phe Ile Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser  
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Ala Pro Lys Ser Gln Ala Arg Lys Glu Lys Ala Phe His Asp Glu His  
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Phe Gly Pro Phe Phe Arg Thr Asn Gln Ile Phe Val Thr Ala Lys Asn  
 405 410 415

Arg Ser Ser Tyr Lys Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe  
 420 425 430

Ser Gly Ile Leu Ser Leu Asp Leu Leu Gln Glu Leu Leu Glu Leu Gln  
 435 440 445

Glu Arg Leu Arg His Leu Gln Val Trp Ser His Glu Ala Gln Arg Asn  
 450 455 460

Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro His Asn Thr  
 465 470 475 480

Ser Leu Thr Asp Cys Cys Val Asn Ser Leu Leu Gln Tyr Phe Gln Asn  
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Asn His Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Asn Gly Gln  
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Thr Ser Leu Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala  
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Pro Leu Thr Tyr Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Ile Ala  
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Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Val Gly Gly Tyr Gln  
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Gly Thr Asp Tyr Ser Glu Ala Glu Ala Leu Ile Ile Thr Phe Ser Ile  
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Asn Asn Tyr Pro Ala Asp Asp Pro Arg Met Ala His Ala Lys Leu Trp  
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Glu Glu Ala Phe Leu Lys Glu Met Gln Ser Phe Gln Arg Ser Thr Ala  
 595 600 605

Asp Lys Phe Gln Ile Ala Phe Ser Ala Glu Arg Ser Leu Glu Asp Glu  
 610 615 620

Ile Asn Arg Thr Thr Ile Gln Asp Leu Pro Val Phe Ala Ile Ser Tyr  
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Leu Ile Val Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Arg  
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Trp Ser Arg Val Ala Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly  
 660 665 670

Val Ala Val Val Leu Gly Ala Val Val Ala Ala Met Gly Phe Tyr Ser  
 675 680 685

Tyr Leu Gly Val Pro Ser Ser Leu Val Ile Ile Gln Val Val Pro Phe  
 690 695 700

Leu Val Leu Ala Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu

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Gly	Arg	Thr	Leu	Gly	Ser	Val	Ala	Pro	Ser	Met	Leu	Leu	Cys	Ser	Leu
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Ser	Glu	Ala	Ile	Cys	Phe	Phe	Leu	Gly	Ala	Leu	Thr	Ser	Met	Pro	Ala
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Tyr	Val	Ala	Ile	Ala	Ala	Ser	Ser	Trp	Val	Asp	Asp	Phe	Ile	Asp	Trp
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Leu Thr Pro Ser Ser Ser Cys Cys Arg Ile Tyr Thr Arg Gly Pro His  
965 970 975

Lys Asp Glu Phe Cys Pro Ser Thr Asp Thr Ser Phe Asn Cys Leu Lys  
980 985 990

Asn Cys Met Asn Arg Thr Leu Gly Pro Val Arg Pro Thr Thr Glu Gln  
995 1000 1005

Phe His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Thr Pro Asn Ile  
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Arg Cys Pro Lys Gly Gly Leu Ala Ala Tyr Arg Thr Ser Val Asn  
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Leu Ser Ser Asp Gly Gln Ile Ile Ala Ser Gln Phe Met Ala Tyr  
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His Lys Pro Leu Arg Asn Ser Gln Asp Phe Thr Glu Ala Leu Arg  
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Ala Ser Arg Leu Leu Ala Ala Asn Ile Thr Ala Glu Leu Arg Lys  
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Val Pro Gly Thr Asp Pro Asn Phe Glu Val Phe Pro Tyr Thr Ile  
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Ser Asn Val Phe Tyr Gln Gln Tyr Leu Thr Val Leu Pro Glu Gly  
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Ile Phe Thr Leu Ala Leu Cys Phe Val Pro Thr Phe Val Val Cys  
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Tyr Leu Leu Leu Gly Leu Asp Ile Arg Ser Gly Ile Leu Asn Leu  
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Leu Ser Ile Ile Met Ile Leu Val Asp Thr Ile Gly Leu Met Ala  
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Val Trp Gly Ile Ser Tyr Asn Ala Val Ser Leu Ile Asn Leu Val  
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Ser Phe Ala Val Ser Thr Lys Pro Thr Arg Leu Glu Arg Ala Lys  
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Asp Ala Thr Ile Phe Met Gly Ser Ala Val Phe Ala Gly Val Ala  
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Met Thr Asn Phe Pro Gly Ile Leu Ile Leu Gly Phe Ala Gln Ala  
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Gln Leu Ile Gln Ile Phe Phe Phe Arg Leu Asn Leu Leu Ile Thr  
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Leu Leu Gly Leu Leu His Gly Leu Val Phe Leu Pro Val Val Leu  
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Ser Tyr Leu Gly Pro Asp Val Asn Gln Ala Leu Val Leu Glu Glu  
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Lys Leu Ala Thr Glu Ala Ala Met Val Ser Glu Pro Ser Cys Pro  
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Gln Tyr Pro Phe Pro Ala Asp Ala Asn Thr Ser Asp Tyr Val Asn  
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Tyr Gly Phe Asn Pro Glu Phe Ile Pro Glu Ile Asn Ala Ala Ser  
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Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser Leu
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Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg Lys
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tac acc ggc ccc aac acc caa gcc tgc tgc tcc gcc aag cag ctg gta      347
Tyr Thr Gly Pro Asn Thr Gln Ala Cys Cys Ser Ala Lys Gln Leu Val
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tca ctg gaa gcg agt ctg tcg atc acc aag gcc ctc ctc acc cgc tgc      395
Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg Cys
                    100                      105                      110

cca gcc tgc tct gac aat ttt gtg aac ctg cac tgc cac aac acg tgc      443
Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr Cys
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His Ser Phe Ala Glu Gln Ser Tyr Asp Ser Cys Ser Arg Val Arg Val							
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Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile Ile							
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Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly Phe							
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Gly Gln Phe Phe Gln Gly Trp Gly Thr Trp Val Ala Ser Trp Pro Leu							
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Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala Gly							
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Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser Ala							
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470 475 480	
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Leu Thr Phe Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Met Ala Asp	
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Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Ile Gly Gly Tyr Lys Gly	
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Lys Asp Tyr Ser Glu Ala Glu Ala Leu Ile Met Thr Phe Ser Leu Asn	
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Asn Tyr Pro Ala Gly Asp Pro Arg Leu Ala Gln Ala Lys Leu Trp Glu	
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Glu Ala Phe Leu Glu Glu Met Arg Ala Phe Gln Arg Arg Met Ala Gly	
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Thr	Lys	Pro	Thr	Trp	Leu	Glu	Arg	Ala	Lys	Glu	Ala	Thr	Ile	Ser			
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Met	Gly	Ser	Ala	Val	Phe	Ala	Gly	Val	Ala	Met	Thr	Asn	Leu	Pro			
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ggc	atc	ctt	gtc	ctg	ggc	ctc	gcc	aag	gcc	cag	ctc	att	cag	atc			3848
Gly	Ile	Leu	Val	Leu	Gly	Leu	Ala	Lys	Ala	Gln	Leu	Ile	Gln	Ile			
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ttc	ttc	ttc	cgc	ctc	aac	ctc	ctg	atc	act	ctg	ctg	ggc	ctg	ctg			3893
Phe	Phe	Phe	Arg	Leu	Asn	Leu	Leu	Ile	Thr	Leu	Leu	Gly	Leu	Leu			
1265						1270						1275					
cat	ggc	ttg	gtc	ttc	ctg	ccc	gtc	atc	ctc	agc	tac	gtg	ggg	cct			3938
His	Gly	Leu	Val	Phe	Leu	Pro	Val	Ile	Leu	Ser	Tyr	Val	Gly	Pro			
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gac	gtt	aac	ccg	gct	ctg	gca	ctg	gag	cag	aag	cgg	gct	gag	gag			3983
Asp	Val	Asn	Pro	Ala	Leu	Ala	Leu	Glu	Gln	Lys	Arg	Ala	Glu	Glu			
1295						1300						1305					
gcg	gtg	gca	gca	gtc	atg	gtg	gcc	tct	tgc	cca	aat	cac	ccc	tcc			4028
Ala	Val	Ala	Ala	Val	Met	Val	Ala	Ser	Cys	Pro	Asn	His	Pro	Ser			
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cga	gtc	tcc	aca	gct	gac	aac	atc	tat	gtc	aac	cac	agc	ttt	gaa			4073
Arg	Val	Ser	Thr	Ala	Asp	Asn	Ile	Tyr	Val	Asn	His	Ser	Phe	Glu			
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 Gly Ser Ile Lys Gly Ala Gly Ala Ile Ser Asn Phe Leu Pro Asn  
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aat ggg cgg cag ttc tga tacagccaga ggccctgtct aggctctatg 4166  
 Asn Gly Arg Gln Phe  
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<211> 1359

<212> PRT

<213> Homo sapiens

<400> 44

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Cys Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser  
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 Val Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg  
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 Cys Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr  
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 Cys Ser Pro Asn Gln Ser Leu Phe Ile Asn Val Thr Arg Val Ala Gln  
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 Gln Asp Cys Ala Ala Ser Cys Pro Ala Ile Ala Arg Pro Gln Ala Leu  
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Asp Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile  
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Ile Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly  
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Phe Arg Val Ala Pro Ala Arg Asp Lys Ser Lys Met Val Asp Pro Lys  
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Lys Gly Thr Ser Leu Ser Asp Lys Leu Ser Phe Ser Thr His Thr Leu  
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Leu Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala  
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Gly Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser  
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Ala Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His  
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Phe Gly Pro Phe Phe Arg Thr Asn Gln Val Ile Leu Thr Ala Pro Asn  
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Arg Ser Ser Tyr Arg Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe  
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Ser Gly Ile Leu Asp Leu Asp Leu Leu Leu Glu Leu Leu Glu Leu Gln  
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Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Asp Asn Thr  
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Ser Leu Tyr Asp Cys Cys Ile Asn Ser Leu Leu Gln Tyr Phe Gln Asn  
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Asn Arg Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Met Gly Gln  
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Thr Ser Gln Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala

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Trp	Ser	Arg	Val	Met	Val	Asp	Ser	Lys	Ala	Thr	Leu	Gly	Leu	Gly	Gly
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Ser	Glu	Ala	Ile	Cys	Phe	Phe	Leu	Gly	Ala	Leu	Thr	Pro	Met	Pro	Ala
		755					760					765			

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Gln	Lys	Ala	Tyr	Ala	Pro	Phe	Leu	Leu	His	Trp	Ile	Thr	Arg	Gly	Val	835	840	845	
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Cys	His	Ile	Ser	Val	Gly	Leu	Asp	Gln	Glu	Leu	Ala	Leu	Pro	Lys	Asp	865	870	875	880
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<213> Mus musculus

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25

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